

**Amendments to the Claims:**

This listing of the claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1-122 (Cancelled)

123 (Currently Amended). A method for the preparation of a cell composition consisting essentially of human hematopoietic CD38<sup>-/low</sup> CXCR4<sup>+</sup> stem cells capable of migrating in response to stromal-derived factor 1 (SDF-1), said hematopoietic CD38<sup>-/low</sup> CXCR4<sup>+</sup> stem cells having the capacity of migrating to, and of engraftment and repopulation of, the bone marrow in a host, comprising:

stimulating CD38<sup>-/low</sup> CXCR4<sup>-/low</sup> human stem cells for up to five days with a suitable agent capable of converting CD38<sup>-/low</sup> CXCR4<sup>-/low</sup> into CD38<sup>-/low</sup> CXCR4<sup>+</sup> stem cells, thus converting the CD38<sup>-/low</sup> CXCR4<sup>-/low</sup> into CD38<sup>-/low</sup> CXCR4<sup>+</sup> stem cells, and wherein said suitable agent is selected from the group consisting of a lectin, a cytokine, at least one type of mammalian stromal cells, and mixtures thereof, said agent being capable of converting CD38<sup>-/low</sup> CXCR4<sup>-/low</sup> into CD38<sup>-/low</sup> CXCR4<sup>+</sup> stem cells, and

sorting out those CD38<sup>-/low</sup> CXCR4<sup>+</sup> human stem cells that migrate in response to SDF-1.

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124 (Previously Presented). The method according to claim 123, wherein the  $CD38^{-/low} CXCR4^{-/low}$  stem cells are stimulated with said suitable agent for 1-2 days.

125 (Currently Amended). A method for increasing a population of hematopoietic  $CXCR4^{+}$  stem cells for use in clinical transplantation, comprising:

up-regulating surface  $CXCR4$  expression of hematopoietic stem cells, wherein said up-regulation is carried out by stimulation of a cellular population comprising hematopoietic  $CXCR4^{+}$  and  $CXCR4^{-/low}$  stem cells that have the potential to express  $CXCR4$  on the cell surface, with a suitable agent, thus converting the  $CXCR4^{-/low}$  into  $CXCR4^{+}$  cells, and wherein the  $CXCR4^{-/low}$  stem cells are stimulated for up to five days with a suitable agent capable of converting  $CXCR4^{-/low}$  into  $CXCR4^{+}$  stem cells, thus converting the  $CXCR4^{-/low}$  into  $CD38^{-/low} CXCR4^{+}$  stem cells, and wherein said suitable agent is selected from the group consisting of a lectin, a cytokine, at least one type of mammalian stromal cells, and mixtures thereof, said agent being capable of increasing  $CXCR^{+}$  surface expression on hematopoietic stem cells; and

sorting out those  $CXCR4^{+}$  stem cells that migrate in response to SDF-1.

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126 (Previously Presented). The method according to claim 125, wherein the CXCR4<sup>-/low</sup> stem cells are stimulated with said suitable agent for 1-2 days.

127 (Cancelled)

128 (Previously Presented). A method in accordance with claim 123, wherein said suitable agent is selected from the group consisting of SCF, IL-1, IL-6, IL-11, GM-CSF, and mixtures thereof.

129 (Previously Presented). The method according to claim 123, wherein said suitable agent is a member selected from the group consisting of SCF and a mixture of SCF and IL-6.

130 (Previously Presented). A method in accordance with claim 125, wherein said suitable agent is selected from the group consisting of SCF, IL-1, IL-6, IL-11, GM-CSF, and mixtures thereof.

131 (Previously Presented). The method according to claim 125, wherein said suitable agent is a member selected from the group consisting of SCF and a mixture of SCF and IL-6.